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## The Commissioner of Patents and Trademarks

*Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.*

*Therefore, this*

### United States Patent

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US005,839,514A

# United States Patent [19] Gipson

[11] Patent Number: 5,839,514

[45] Date of Patent: Nov. 24, 1998

[54] METHOD AND APPARATUS FOR  
INJECTION OF TUBING INTO WELLS

[75] Inventor: Thomas C. Gipson, Cisco, Tex.

[73] Assignee: Fleet Cementers, Inc., Cisco, Tex.

[21] Appl. No.: 862,745

[22] Filed: May 23, 1997

[51] Int. Cl.<sup>6</sup> ..... E21B 19/22[52] U.S. Cl. .... 166/384; 166/77.2; 166/85.5;  
242/399.1; 242/596.3; 254/288; 254/332;  
254/333[58] Field of Search ..... 166/77.2, 77.1,  
166/85.5, 384, 385; 242/399.1, 399.2, 596.3;  
254/281, 288, 326, 332, 333

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[57]

## ABSTRACT

An improved apparatus and method for injecting and retrieving a length of coiled tubing and storing the tubing on a storage spool. An injector reel is pivotally mounted on a frame such that coiled tubing may be angularly injected to shallow, horizontal wells. A hold-down assembly is provided to individually adjust the pressure applied to the coiled tubing as it is injected into or retrieved from a well. The positioning of the injector reel and the storage spool in the injecting mode ensures a greater degree of wrapping of the coiled tubing around the injector reel to improve the control of the injection and retraction of the tubing. A vertically and horizontally adjustable storage spool cradle enables the operator to vary the width and diameter of the storage spools used in the apparatus.

11 Claims, 8 Drawing Sheets

